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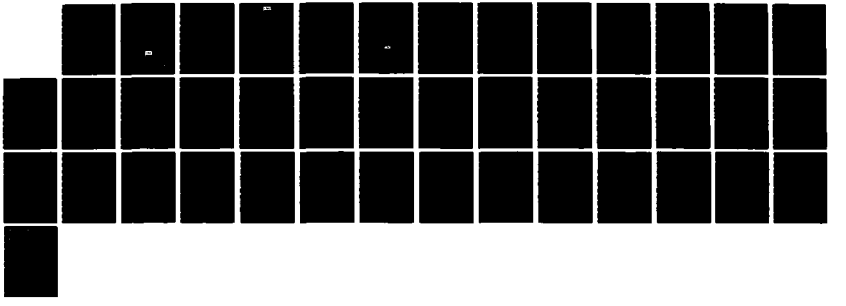

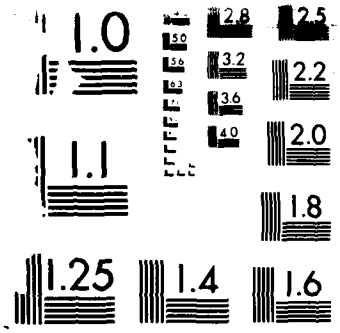
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CRM 86-141 / June 1986

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RESEARCH MEMORANDUM

DOCUMENTATION OF THE MASTER COURSE REFERENCE FILE AND ANALYSIS OF FORMAL TRAINING COURSES IN 1985

Patricia E. Byrnes
Susan M. Schoeck

AD-A175 361

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1. Enclosure (1) is forwarded as a matter of possible interest.

2. This Research Memorandum documents the CNA-held extract of the 1985 Master Course Reference File. An examination of the file reveals features of the data and characteristics of Navy formal training.

Robert F. Lockman

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Director
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DOCUMENTATION OF THE MASTER COURSE REFERENCE FILE AND ANALYSIS OF FORMAL TRAINING COURSES IN 1985

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INTRODUCTION

The Navy provides its personnel a considerable amount of formal schoolhouse training. The Navy Integrated Training Resources and Administration System (NITRAS) is the major source of data on formal training in the Navy. NITRAS was designed to provide automated capability and information on training to the Chief of Naval Education and Training (CNET) and other commands concerned with training activities. Because the ~~Master Course Reference File~~ (MCRF) provides the common data base for the other NITRAS files, it is an important source for understanding how Navy formal training is organized. Standardized course data elements, class schedules, and class quotas for each formal training course constitute the MCRF data.

This research memorandum documents the FY 1985 extract of the MCRF held by the Center for Naval Analyses (CNA). It analyzes the courses by several different characteristics to provide a better understanding of the training data and to document institutional features of formal training in the Navy. It also describes alternative ways the data can be accessed within CNA. Through either the COBOL file or the Statistical Analysis System (SAS) file descriptions provided, useful information is available and readily accessible to research on training issues.

The next section discusses the scope of the MCRF and summarizes both the MCRF reporting procedures and the uses of the MCRF information by the Navy. The subsequent section contains the documentation of the 1985 MCRF extract, available at CNA, followed by an analysis of the distribution of courses by type of training, curriculum control authority, NITRAS reporting code, service support, and method of instruction code. A summary concludes the paper.

SCOPE OF THE MCRF[1]

The MCRF is the common data base for three data files: the Student Master File (SMF), the Training Summary File (TSF), and the Pipeline Management File (PMF), which together constitute the NITRAS system. NITRAS was developed to provide CNET with the automated capability to manage and support the total individual training effort. There are over 300 NITRAS user sites. For example, both the recruiting command and the Navy Military Personnel Command (NMPC) use the NITRAS information to carry out their functions. Since July 1974, NITRAS has been the only official source of the training information that constitutes its data base. The many important uses and the uniqueness of the information contained in NITRAS make it a comprehensive yet somewhat complicated system.

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1. This summary of the MCRF is derived from three sources: [1], [2], and discussions with the NITRAS systems manager.

The MCRF contains information on "formal training courses," which includes all courses listed in the Catalogue of Navy Training (CANTRAC) [3]. Information on courses not contained in CANTRAC such as recruit and apprenticeship training, specialized brief training, and Naval Reserve drills and training courses are also included in the MCRF. Courses are assigned to a curriculum control authority (CCA), which is actually the cognizant functional commander with controlling interest in the course.[1] The CCAs are required to report information on all courses under their control in several different situations. The reporting procedures are provided in [2]. The procedures for correcting and updating reported information are designed to ensure accurate and timely dissemination of the information from NITRAS.

The information in the MCRF is contained in three records for each course:

- The course record, which includes basic course identifying and classification information
- The class schedule and quota record, which includes class convening and graduation dates and quota information
- The training plans and requirements record, which includes training input plans and capacity information for 7 fiscal years.

The course record provides general identifying information about the course. Each course in NITRAS is assigned and uniquely identified by the Course Data Processing (CDP).[2] The CDP code is location-specific, and even component phases of a course are assigned individual CDPs. The Course Identifying Number (CIN) is not location specific. Thus, the same course conducted at different locations will have the same CIN but distinct CDPs.

The class schedule and quota record serves a programming function throughout the Navy. For example, the class quotas and convening dates are used by the recruiting command in the Personalized Recruiting for Immediate and Delayed Enlistments (PRIDE) system. The majority of recruits entering the Navy are promised an A-school, i.e., initial skill training for a particular specialty or rating. The class schedule and quota information in the MCRF is the input to PRIDE, providing the information on how many school seats are available each month. The convening dates are also required information for the detailers within NMPC. These detailers send enlisted Navy personnel to the various schools for training.

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1. See appendix A, table A-4 for a list of the CCAs.
2. CDP is also the course code reported on the Enlisted Master Record (EMR) file.

The training plans and requirements record is an integral part of the Navy budgeting process. This record includes information on training input requirements and capacities for seven fiscal years--the two past FYs, the current FY, and the four future FYs. The 1985 MCRF, for example, contains information for FY 1983 through FY 1989.

DOCUMENTATION OF CNA'S EXTRACT OF THE FY 1985 MCRF[1]

The CNA extract of the 1985 MCRF contains all of the MCRF course information, but it includes only those courses that are active in the current FY 1985. Thus, although the 1985 MCRF at NITRAS includes all active courses for the two past fiscal years, the CNA extract is constrained to only those courses active in FY 1985.

Appendix A provides a detailed description of the variables in the CNA extract and the number of missing observations for each variable. In general, the reporting is consistent. For only a few variables is the number of missing observations above 10 percent;[2] for several numeric variables, however, the value of the variable is zero. If those observations are counted as missing, the number missing increases substantially and indicates a reporting problem.

The file can be accessed on tape in two forms, a SAS system file and a flat version. If one chooses to program in SAS, the tape to use is number 001781, TRNMCRF. A flat file version is also available on tape (number 001784, TRAIN-MCRF) for those programming in other languages. The COBOL format for this file is provided in appendix B.

FEATURES OF FORMAL TRAINING COURSES IN FY 1985

To obtain a better understanding of the information contained in the MCRF and to document institutional features of formal training in the Navy, this section analyzes four quantitative course variables in the MCRF by several different course attributes. The quantitative variables are:

- The course length in calendar days (LENGTH)
- The maximum yearly student input capacity (MAXINP)

---

1. CNA has microfiche copies of the MCRF for FY 1977 to FY 1982. Additionally, a limited extract (only 12 variables) of the 1983 MCRF is machine-readable.
2. For some courses, the reporting of all information is not required, and the number missing is larger than 10 percent. See [1] for more information.

- The established attrition rate limit (ATTRLIM) for the course

- The established setback rate limit (SETBLIM) for the course.

These variables are all planned measures for 1985 and could differ substantially from the actual length, student input, attrition rate, or setback rate of the course.

Distribution of Courses by Type of Training

In 1985, there were 7,750 formal training courses. These courses can be classified by type of training and whether it is an officer or enlisted course using the type of course (TYPECRSE) variable.[1] Table 1 gives the distribution of courses by type of training and the mean and standard deviation of the length, maximum input, attrition rate, and setback rate by this classification. Of the 7,750 courses, 6,566 (almost 85 percent) are enlisted A-, C-, and F-school courses. A-school type training is the initial skill training that provides the occupational qualification (or rating) for enlisted personnel. C-school courses provide more specialized training, often training that leads to a Navy Enlisted Classification (NEC). The generally shorter F-school courses provide fleet-type training, e.g., firefighting for enlisted personnel.

These courses essentially constitute the Navy Specialized Skill Training as defined by the Military Manpower Training Report (MMTR) [4]. There are three differences between the classification of table 1 and that of the MMTR. First, in table 1 the initial skill (A-school) training excludes apprenticeship training, which is included in A-school in the MMTR. Secondly, the MMTR further disaggregates the E-schools or professional development courses. Finally, the MMTR includes only budget category 8 (BA-8), and the classification in table 1 does not make this distinction. With these caveats in mind, computations based on the two classifications are comparable.

The average maximum yearly input into an enlisted A-school course is 781 students; the average length is 54 days. As indicated by the standard deviations, however, there is considerable variation in both the student input and length. As expected by the definition, the length

1. Tables A-2 and A-3 in appendix A describe the type course code and the classification of the courses into type training categories, respectively. Although a course is classified as an enlisted or officer course, it does not necessarily classify the students taking the course. Officers, for example, could be enrolled in a course classified as an enlisted course.

TABLE 1

DESCRIPTIVE STATISTICS OF COURSE VARIABLES
BY TYPE OF TRAINING

	Number of courses	Mean (standard deviation)[a] LENGTH	MAXINP	ATTRLIM	SETBLIM
A-school					
Enlisted	413	54	781	6.68	1.11
		(42)	(1,929)	(7.44)	(1.33)
Officer	67	45	218	2.18	2.91
		(48)	(298)	(2.77)	(3.30)
C-school					
Enlisted	4,206	43	86	3.19	5.44
		(50)	(414)	(4.51)	(7.60)
Officer	513	52	96	2.27	1.64
		(62)	(225)	(3.54)	(2.99)
F-school					
Enlisted	1947	6	409	3.19	3.23
		(7)	(1,316)	(4.41)	(3.14)
Officer	468	5	330	1.90	2.70
		(4)	(659)	(2.59)	(3.10)
Recruit	19	41	6,509	6.63	13.50
		(19)	(11,146)	(4.73)	(8.26)
Apprenticeship	18	28	3,471	2.78	7.33
		(0)	(1,835)	(2.18)	(3.44)
E-school	62	171	397	1.0	NR[b]
		(253)	(331)	(0.0)	
P-school	27	61	1,129	6.38	3.00
		(99)	(2,148)	(10.36)	(2.83)
V-school	10	NR	NR	11.5	7.50
				(12.0)	(3.53)
Total	7,750	33	221	23.0	6.8
		(46)	(886)	(42.3)	(36.2)

a. Means and standard deviations are computed excluding missing observations.
b. Not reported.

of F-school is considerably shorter than C-school, with a higher average yearly input.

There are 18 apprenticeship training courses. These courses have one of three CIN codes--indicating, the same course is conducted at three different locations. All apprenticeship training is located at the three recruit training locations--San Diego, Orlando, and Great Lakes.[1] Apprenticeship training is a month-long course conducted after recruit training for those recruits who enter the fleet and do not attend A-school.

Distribution of Courses by Curriculum Control Authority

Table 2 gives the distribution of courses by the curriculum control authority (CCA). The CCA is the functional commander responsible not only for the course, but also for reporting course information to NITRAS. The CCA code is the first digit of the nine-digit CIN variable. Additional descriptive information of the 20 CCA codes is provided in table A-4 of appendix A. For almost 53 percent (4,091 courses) of the individual specialized skill training courses, the Chief of Naval Technical Training (CNTT) is the curriculum control authority. Although not pursued in this paper, additional analysis of the CCA codes could provide additional insight into differences in the courses operated by the different functional commands.

Distribution of Courses by Student Reporting Code

The MCRF also includes a code associated with each course that identifies the NITRAS file to which students taking the course are reported. The code, denoted by STURPT, is an S if Student Master File (SMF) reporting is required or a T if Training Summary File (TSF) reporting is required.

Required reporting to the SMF indicates that each student enrolled in the course is reported and that progression or attrition from the course is recorded by individual. The TSF requires reporting only at a more aggregate level--summary statistics by course.

The course characteristics that mandate reporting to a particular system are described in detail in [2].[2] Briefly, SMF reporting includes all courses that (1) award or lead to the award of an NEC regardless of length, (2) are identified with an officer course code, or (3) are a

1. A different unit identification code (UIC) is assigned to apprenticeship training for the three General Detail (GENDET) ratings--Airman, Fireman, and Seaman--although they are in the same location. This indicates that the UIC is more specific than just geographic location for the apprenticeship training courses.
2. See also the SMF or TSF manuals.

TABLE 2

DESCRIPTIVE STATISTICS OF COURSE VARIABLES
BY CURRICULUM CONTROL AUTHORITY[a]

CCA (CIN prefix)	Number of courses	Mean (standard deviation) LENGTH	MAXINP	ATTRLIM	SETBLIM
CNTT	2,276	39	183	4.12	7.08
(A)		(48)	(586)	(6.04)	(10.54)
MEDCOM	130	123	203	NR[b]	NR
(B)		(117)	(406)		
CNTT/Aviation	1,815	23	111	2.45	12.58
(C)		(33)	(722)	(3.16)	(14.60)
AIRLANT	601	59	84	3.01	2.72
(D)		(50)	(155)	(3.72)	(3.70)
AIRPAC	698	56	123	5.77	5.69
(E)		(49)	(336)	(5.27)	(5.05)
SUBLANT	141	8	568	2.20	NR
(F)		(12)	(952)	(3.11)	
SURFLANT	40	NR	NR	NR	NR
(G)					
SURFPAC		NR	NR	NR	NR
(H)					
TRALANT	518	15	440	3.21	3.61
(J)		(24)	(1,286)	(3.94)	(5.45)
TRAPAC	426	19	435	3.63	4.83
(K)		(36)	(1,851)	(3.50)	(3.70)
SUBPAC	161	7	320	2.18	8.00
(L)		(18)	(612)	(3.22)	(9.90)
MARINE	38	84	NR	NR	NR
(M)		(33)			
NALC	313	16	53	NR	NR
(N)		(17)	(50)		
CNET	38	170	989	12.0	3.00
(P)		(269)	(2,181)	(13.6)	(2.83)
CNATRA	47	27	540	4.59	6.83
(Q)		(27)	(711)	(4.42)	(3.76)
RESFOR	75	11	186	9.34	5.25
(R)		(12)	(920)	(4.10)	(5.48)
Other	115	66	261	4.15	1.14
(S)		(105)	(535)	(8.43)	(0.85)
Recruit/Other	218	11	1,979	1.92	7.37
(X)		(17)	(5,024)	(2.50)	(6.89)
Other CNET	13	1	787	NR	NR
(Y)		(0)	(23)		
CNET/Reserve	87	16	15	2.77	NR
(Z)		(13)	(6)	(6.42)	

a. The means and standard deviations are calculated with missing values of the variable excluded.
b. Not reported.

pipeline segment course. Also, courses of 12 calendar days or more not awarding an NEC are required to report. The TSF courses include those that are 12 days or less that do not award an NEC or that are not identified with an officer course code.[1]

Table 3 gives the number of courses and descriptive statistics of course variables when the courses are classified by this system report code and type of training. Of the 7,750 courses in 1985, over 85 percent (6,621 courses) are required to report the students to the SMF. Of the 1,129 courses not required to report to the SMF, almost 70 percent are enlisted F-school courses. Less than 1 percent of both the enlisted A-school and C-school courses are not required to report to the SMF. As expected from the reporting rules, the A-, C-, and F-school courses not reporting to the SMF are the "shorter" (less than 13 days) courses, on average; however, the average maximum yearly input of these courses is higher in the C- and F-school training categories. Thus, although the courses are short, several students could be taking these courses, and hence training calculations computed from the SMF alone could be misleading. Concurrent work, however, indicated that about 99 percent of the A- and C-school training load was reported to the SMF between FY 1979 and FY 1985 [6].

None of the recruit training and apprenticeship training courses are required to be SMF reporting courses. This fact is not clear from the reporting rules documented and summarized above. Because these courses report only to the TSF (which includes only data at the course level), analysis of these types of training at an individual level will be limited.

The P-school (officer acquisition) courses follow the same pattern as the A-, C-, and F-school reporting. That is, the shorter P-school courses are not required to report to the SMF, and slightly over half are reported to the SMF. Most of the E-school courses are not reported to the SMF; however, eight of the ten flight officer (V-school) courses are reported to the SMF. Missing data do not allow for the characterization of the two V-school courses that do not report to the SMF.

Distribution of Courses by Service Support Code

Two measures of the amount of training are often cited--the training load and work load. The distinction between these measures lies in the individuals being trained and the service providing the training support. The Navy's training load includes training of Naval

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1. The NITRAS manager at the Management Information and Instructional Systems Activity indicated that some students in courses that are not mandated SMF reporting courses are often reported to the SMF. The consistency or magnitude of this practice, however, was not known.

TABLE 3

DESCRIPTIVE STATISTICS OF COURSE VARIABLES BY STUDENT REPORTING CODE

	Mean (standard deviation)					
	SMF reporting			TSF reporting		
	Number of courses	LENGTH	MAXINP	Number of courses	LENGTH	MAXINP
A-school						
Enlisted	407	54 (42)	782 (1,936)	6	3 (2)	675 (742)
Officer	59	52 (49)	170 (239)	8	3 (2)	449 (449)
C-school						
Enlisted	4,176	44 (50)	85 (412)	30	10 (5)	396 (762)
Officer	489	54 (62)	80 (110)	24	7 (8)	484 (934)
F-school						
Enlisted	1,157	8 (6)	222 (724)	790	4 (8)	680 (1,834)
Officer	296	6 (5)	175 (248)	172	4 (2)	639 (1,019)
Recruit	0	--	--	19	41 (19)	6,509 (11,146)
Apprenticeship	0	--	--	18	28 (0)	3,471 (1,835)
E-school	15	167 (144)	363 (271)	47	172 (276)	448 (532)
P-school	14	114 (116)	1,223 (2,459)	13	5 (3)	818 (536)
V-school	8	NR	NR	2	NR	NR
Total	6,621	38 (48)	150 (652)	1,129	10 (54)	836 (2,547)

personnel, no matter which service provides the training support. The Navy's work load includes all individuals, regardless of service, who are trained by Naval support. The work load is used for the DOD budget because the work-load figure is more in line with appropriation requests and the resources and funds required by the service. The MMTR treats inter-service training differently using the training load concept because it is more in line with the training needed to meet Navy manpower requirements.

Fortunately, the service providing the logistical support for each course is contained in the MCRF. The code (SVCSPT) is numeric, with values 1 through 8 indicating the service. Table 4 gives the code, the corresponding service, and the distribution of 1985 courses by the service support code and type training. Of the 7,712 courses for which the code is reported, 572 courses (7.4 percent) are courses in which Naval personnel are trained by other services. The magnitude of other service training cannot be determined from the MCRF because for these courses the capacity data (e.g., the training input plans variables) are not required reporting fields. However, 544 of the 572 other service support courses are required to report to the SMF. Thus, one could determine the magnitude of Naval training supported by other services and compute the training load (number of Navy student days in training) by course for those courses in the MCRF that are not supported by the Navy.

One can further characterize courses by analyzing the Unit Identification Code (UIC). The UIC gives the geographic location of the course. Two different UIC codes are reported for each course on the MCRF—the staff UIC and the student UIC. These codes, although different, usually indicate the same geographic location. As an example of these codes and to further characterize the courses taught by other services, the location and staff UIC for each course by other services is given in table 5. The location for each staff UIC was found in [5].

Distribution of Courses by Method of Instruction

For each course, the designated method of instruction (METHINST) must be reported to the MCRF. There are four valid codes (see table A-1) from which one can classify courses as being self-paced or lock-step courses. Table 6 gives the number of enlisted specialized training courses and the mean and standard deviation of the course variables by this two-way classification. For all three specialized training types, most courses are lock-step (or group-paced) courses. Only 3 percent of these courses are classified as self-paced courses. The maximum yearly input into the self-paced courses is, on average, higher. This is not surprising, given that the maximum student input is computed based on classroom size, equipment capacities, and instructor requirements. These features are more likely to constrain lock-step courses. The maximum yearly input capacity variable provides little

TABLE 4

NUMBER OF COURSES BY SERVICE SUPPORT[a]

	A-school		C-school		F-school							
Service	Enlist	Officer	Enlist	Officer	Enlist	Officer	Recruit	Apprenticeship	E-school	P-school	V-school	Total
Navy	382	62	3,744	497	1,903	434	19	18	45	26	10	7,140
Air Force	16	2	56	3	6	10	0	0	4	1	0	98
Army	3	2	36	2	3	1	0	0	7	0	0	54
Marine Corps	12	1	348	2	23	16	0	0	1	0	0	403
Coast Guard	0	0	1	0	0	0	0	0	0	0	0	1
Civilian	0	0	0	0	0	0	0	0	0	0	0	0
Foreign	0	0	8	3	0	1	0	0	1	0	0	5
Other	0	0	0	0	0	0	0	0	3	0	0	11
Total	413	67	4,193	507	1,935	462	19	18	61	27	10	7,712

a. There are 38 observations (19 C-school, 18 A-school, and 1 E-school) with missing service support codes.

TABLE 5

LOCATION OF OTHER SERVICE COURSES

Staff UIC	Air Force (SVCSUP=2)	No. of courses
00062	CNET--Pensacola, FL	3
0387A	MC Intell Training--Norfolk, VA	6
09048	Carrier Airborne Early Warning Squadrons--NAS, Miramar	1
09123	Helicopter AS Squadron--NAS, Norfolk	1
30921	NTTC detachment--Goodfellow AFB	20
31509	AF Air Intell. Train. Center--Moffett AFB	3
31945	AF Air Intell. Train. Center--Lowery AFB	6
35023	NTTC Detachment--Lackland AFB	12
35185	Light Attack Weapons School--NAS, Lemoore	1
35698	Human Res. Management School Detachment--Patrick AFB	1
35970	Service School Com. Detachment--Chanute AFB	16
39157	Naval Telecommunications Training--Keeser AFB	6
42115	NAVEDUCANDTRACEN--Newport, R.I. (Officer)	1
64165	Naval Unit--Lowery AFB	10
65973	Defense Language Inst.--Lackland AFB	1
68041	AF Interservice Nuclear Weapons School--Denver, CO	6
68068	School of Health Care Service--Sheppard AFB	4
		98

Staff UIC	Army (SVCSUP=3)	No. of courses
00062	CNET--Pensacola, FL	6
0619A	NAVMEDCOM--Bethesda, MD	1
30920	NTTC Detachment--Fort Devens	2
35023	NTTC Detachment--Lackland AFB	1
35412	Army Signal School--Fort Gordon	20
39004	Naval Institute of Correctional Admin.--Fort McClellan	8
39363	Fort Belvoir	1
41620	Acad. of Health Sciences--Fort Sam Houston	1
42446	Naval Explosive Ordnance Disposal School Detachment--Redstone Arsenal, AL	1
64161	Army Quartermaster School--Fort Lee	1
64167	Defense Information School--Fort Harrison	12
		54

TABLE 5 (Continued)

Staff UIC	Marine Corps (SVCSUP=4)	No. of courses
00164	MC Development--Quantico, VA	5
0619A	NAVMEDCOM--Bethesda, MD	9
09191	Fleet Aviation Specialized Training Group, Pacific--San Diego, CA	8
42087	Fleet Combat Training Center--Virginia Beach, VA	2
42141	General Skill Training NAS--Meridian, MS	2
42146	General Skill Training--Millington, TN	17
63115	Naval Air Maintaintenance Training Group--Millington, TN	347
64493	Field Medical Service School--Camp Lejeune, NC	3
64494	McField Medical Service School--Camp Pendleton, CA	4
66400	Naval Intell. Process System NAS--Key West, FL	3
67290	Marine Aviation Training Support Group 90--Millington, TN	2
67355	Landing Force Training Command--NAVPHIBASE Norfolk, VA	1
		403

Staff UIC	Coast Guard (SVCSUP=5)	No. of courses
42851	Fleet ASW Train Center Pacific--San Diego, CA	1
		1

	Civilian (SVCSUP=6)	No. of courses
		0

	Foreign (SVCSUP=7)	No. of courses
00062	CNET--Pensacola, FL	1
42857	Defense Intelligence Agency/ Joint Manpower Plan	1
63021	Naval Amphibious School--Norfolk, VA	1
63910	SW Officers School Command--Newport, RI	2
		5

	Other (SVCSUP=8)	No. of courses
00062	CNET--Pensacola, FL	1
42347	NTT Det National Cryptologic School--Fort Meade	8
65522	Defense Resources Management Educ. Center NAVPGSCL--Monterey, CA	2
		11

indication of the relative training load across courses classified by method of instruction.

The course length of lock-step A- and C-school courses is, on average, shorter than for self-paced courses. In addition, the established attrition rate is, on average, higher in A- and C-school self-paced courses. It would be interesting to compare the actual length, attrition, and setback rate for self-paced and lock-step courses using the SMF data to determine if the differences in length, attrition and yearly input by method of instruction (table 6) actually occur. Because costs of training depend, in part, on this course characteristics analysis of the SMF historical workload data by method of instruction could reveal areas where the method of instruction is perhaps not cost effective.

TABLE 6

DESCRIPTIVE STATISTICS OF ENLISTED COURSE VARIABLES BY METHOD OF INSTRUCTION[a]

	A-school		C-school		F-school	
	Self	Lock	Self	Lock	Self	Lock
Number of courses[b]	134	278	50	4,150	42	1,891
LENGTH[c]	55 (38)	53 (45)	53 (52)	43 (50)	4 (5)	6 (7)
MAXINP	2,361 (3,963)	509 (1,099)	210 (249)	85 (416)	602 (1,326)	383 (1,018)
ATTRLIM	8.70 (8.11)	5.52 (6.78)	5.18 (6.43)	3.17 (4.48)	2.15 (2.42)	3.21 (4.46)
SETBLIM	8.29 (12.66)	12.97 (13.36)	14.67 (26.91)	5.13 (5.96)	2.83 (2.48)	2.82 (2.96)

a. The means (standard deviation) are provided for each course variable. The samples exclude officer courses.
b. The method of instruction was not reported for 40 courses.
c. The length of self-paced courses is expressed in the data as the average number of calendar days required to complete the course.

CONCLUSION

The CNA extract of the 1985 MCRF documented in this paper is perhaps the best in-house source for analyzing features of the training data in NITRAS and for understanding the organization of formal training in the Navy. The paper describes how the data set can be easily accessed by CNA analysts. Continuing work will allow for the integration of future MCRF extracts as the data are obtained by CNA. An updated dictionary of Navy training courses will be available to facilitate use of the NITRAS data in the future.

Analysis of course attributes using the 1985 MCRF extract revealed several features of the training data and Navy individual formal training:

- Of 7,750 courses in 1985, almost 85 percent are enlisted A-, C-, and F-school type training.
- Training data are available at the individual level for most A- and C-school enlisted training. For about 40 percent of F-school type training and all recruit and apprenticeship training, student reporting is not required and only data at the aggregated course level are available from NITRAS.
- A little over 7 percent of all Navy training courses in 1985 are conducted by the other services. The other services are required to report to NITRAS, indicating that accurate "training load" computations could be made from these data.
- Only 3 percent of all A-, C-, and F-school enlisted courses are classified as self-paced courses. The data indicate a difference in the length, student input, and attrition rate for self-paced and lock-step courses.

REFERENCES

[1] Management Information and Instructional Systems Activity (MIISA), No. 23UM8401, "NITRAS - MCRF Users Manual," Dec 1984

[2] Chief of Naval Education and Training, CNETINST 1510.1, Code N-75, "Navy Integrated Training Resources and Administration System (NITRAS) Reporting Procedures," May 1974

[3] "Catalogue of Navy Training Courses [CANTRAC]"

[4] Department of the Navy, U.S. Navy Military Manpower Training Report, FY 1986

[5] Department of the Navy, Office of the Comptroller. Navy Comptroller Manual. Vol. 2, 31 Aug 1984

[6] CNA, Research Memorandum 86-90, "Specialized Skill Training for Active Duty Navy Personnel: A History," by Aline Quester et al., Apr 1986

APPENDIX A

DESCRIPTION OF MCRF VARIABLES

APPENDIX A

DESCRIPTION OF MCRF VARIABLES

This appendix describes each of the variables in the CNA 1985 MCRF data extract. Table A-1 gives the variable name, type (character or numeric), length, description, and number of missing observations. A listing of the type of course variable (TYPECRSE), the type of training variable (SCHLSTU), and the curriculum control authority (CCA) codes are given in tables A-2, A-3, and A-4, respectively.

TABLE A-1

VARIABLE DESCRIPTIONS

ZEROS PLUS MISSING	# OBS. MISSING	VARIABLE	TYPE	LENGTH	DESCRIPTION
NA	3045	ACO	CHAR	5	NMPC Detailer Code ('0' indicates missing).
5736	0	ATRMOVAV	NUM	8	Moving average attrition rate.
2374	0	ATTRLIM	NUM	8	Established attrition rate limit.
NA	0	CCA	CHAR	1	Curriculum Control Authority code. (see Table A3)
NA	9	CDEVICE	CHAR	5	Current Training Devices code in CANTRAC.
NA	0	CDP	CHAR	4	Course Data Processing code (which is location specific)
NA	0	CIN	CHAR	8	Course Identifying Number.
NA	480	ECM	CHAR	5	NMPC Enlisted Community Manager Code.
0	0	LABPDS	NUM	4	Number of one hour laboratory shop periods in the course.
NA	40	METHINST	CHAR	1	Code indicating the method of instruction: P if self-paced instructor managed C if self-paced computer managed B if group-paced computer assisted L if group-paced instructor managed
NA	40	METHOD	CHAR	4	Binary variable defined by: SELF if METHINST=P,C, or B LOCK if METHINST=L
NA	0	NEC	CHAR	4	The Navy Enlisted Classification Code associated with the course ('0000' indicates that no NEC is associated with the course).
NA	7268	PIPELINE	CHAR	1	Code indicating pipeline in which the course is included.
NA	0	PRECIN	CHAR	8	The CIN code of the immediate pre-requisite course (zeros if no prerequisite course).
NA	889	QUOTACTL	CHAR	16	The active duty USN/USNR/TAR quota control agent for the course.
429	0	REC201	NUM	1	The number of years of data in the planned data fields.
NA	911	REQSPO	CHAR	5	The locator code of the cognizant requirement sponsor of the course.
NA	0	RMS	CHAR	4	The Resource Management System cost account code which identifies funding support.
NA	0	SCHLSTU	CHAR	2	Code which identifies type of training category (see Table A3)

TABLE A-1 (CONTINUED)

ZEROS PLUS MISSING	# OBS. MISSING	VARIABLE	TYPE	LENGTH	DESCRIPTION
NA	7181	SCI	CHAR	1	Special Course Indicator code (controlled by CNTECHTRA) with the following valid codes: P if PRIDE course C if cross utilization course N if new ship acquisition course
6956	0	SETBLIM	NUM	3	Approved maximum acceptable setback rate consistent with course's learning objectives (percent).
NA	0	SFUIC	CHAR	5	Staff UIC (Unit Identification Code), general skills training UIC is used if available.
NA	0	STATCODE	CHAR	1	Code indicating status of the course: A if active course D if deactivated cours P if planned course
NA	0	STATDATE	CHAR	6	Date the course became (or is planned to be active). The field is yymmdd.
NA	4914	STPC	CHAR	5	Identifies the command which has a dual interest in the course (along with TPC).
NA	0	STURPT	CHAR	1	Student report code which identifies the NITRAS system to which the students are reported: S if Student Master File (SMF) T if Training Summary File (TSF)
NA	48	SVCSPT	CHAR	1	Service support code identifies the service providing the logistical support: 1 if Navy 2 if Air Force 3 if Army 4 if Marine Corps 5 if Coast Guard 6 if Civilian 7 if Foreign 8 if Other
0	0	THEPDS	NUM	4	The number of one hour formal classroom (theory) training periods in the course.
NA	0	TITLE	CHAR	16	Abbreviated description of the course.
NA	0	TPC	CHAR	5	Training program coordinator code.
NA	0	TYPECRSE	CHAR	2	Indicates type of training (see Table A2).
NA	0	TYSCHL	CHAR	2	Classification of courses by type of training (see Table A3).
NA	0	UIC	CHAR	5	Student UIC (Unit Identification Code).
7750	4560	ZBD	NUM	8	Zero Base Display code for CNET activity courses.

TABLE A-1 (CONTINUED)

ZEROS PLUS MISSING	# OBS. MISSING	VARIABLE	TYPE	LENGTH	DESCRIPTION
6099	0	CONPD1	NUM	8	Number of courses contract periods at CONRAT1.
1499	0	CONPD2	NUM	8	Number of courses contract periods at CONRAT2.
3460	0	CONPD3	NUM	8	Number of courses contract periods at CONRAT3.
6900	0	CONPD4	NUM	8	Number of courses contract periods at CONRAT4.
7360	0	CONPD5	NUM	8	Number of courses contract periods at CONRAT5.
7597	0	CONPD6	NUM	8	Number of courses contract periods at CONRAT6.
7701	0	CONPD7	NUM	8	Number of courses contract periods at CONRAT7.
0	0	CONRAT1	NUM	8	Course contract student-instructor ratio FY1.
1502	0	CONRAT2	NUM	8	Course contract student-instructor ratio FY2.
3447	0	CONRAT3	NUM	8	Course contract student-instructor ratio FY3.
6892	0	CONRAT4	NUM	8	Course contract student-instructor ratio FY4.
7367	0	CONRAT5	NUM	8	Course contract student-instructor ratio FY5.
7599	0	CONRAT6	NUM	8	Course contract student-instructor ratio FY6.
7716	0	CONRAT7	NUM	8	Course contract student-instructor ratio FY7.
2153	0	FY1	NUM	2	Fiscal year 1 (83-89).
1423	0	FY2	NUM	2	Fiscal year 2 (83-89).
794	0	FY3	NUM	2	Fiscal year 3 (83-89).
791	0	FY4	NUM	2	Fiscal year 4 (83-89).
867	0	FY5	NUM	2	Fiscal year 5 (83-89).
889	0	FY6	NUM	2	Fiscal year 6 (83-89).
908	0	FY7	NUM	2	Fiscal year 7 (83-89).
7750	0	FYSUFF1-7	NUM	1	Fiscal Year Suffix
2597	0	INSTDAY1	NUM	8	Number of days of instruction FY1.
1664	0	INSTDAY2	NUM	8	Number of days of instruction FY2.
1041	0	INSTDAY3	NUM	8	Number of days of instruction FY3.

TABLE A-1 (CONTINUED)

ZEROS PLUS MISSING	# OBS. MISSING	VARIABLE	TYPE	LENGTH	DESCRIPTION
968	0	INSTDAY4	NUM	8	Number of days of instruction FY4.
1062	0	INSTDAY5	NUM	8	Number of days of instruction FY5.
1092	0	INSTDAY6	NUM	8	Number of days of instruction FY6.
1137	0	INSTDAY7	NUM	8	Number of days of instruction FY7.
2224	0	LENGTH1	NUM	5	Course length in calendar days in FY1.
1464	0	LENGTH2	NUM	5	Course length in calendar days in FY2.
834	0	LENGTH3	NUM	5	Course length in calendar days in FY3.
846	0	LENGTH4	NUM	5	Course length in calendar days in FY4.
938	0	LENGTH5	NUM	5	Course length in calendar days in FY5.
973	0	LENGTH6	NUM	5	Course length in calendar days in FY6.
1018	0	LENGTH7	NUM	5	Course length in calendar days in FY7.
3085	0	MAXCAP1	NUM	5	The maximum number of times a course can convene in FY1.
2279	0	MAXCAP2	NUM	5	The maximum number of times a course can convene in FY2.
1579	0	MAXCAP3	NUM	5	The maximum number of times a course can convene in FY3.
1504	0	MAXCAP4	NUM	5	The maximum number of times a course can convene in FY4.
1591	0	MAXCAP5	NUM	5	The maximum number of times a course can convene in FY5.
1619	0	MAXCAP6	NUM	5	The maximum number of times a course can convene in FY6.
1661	0	MAXCAP7	NUM	5	The maximum number of times a course can convene in FY7.
3226	0	MAXCL1	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY1.
2592	0	MAXCL2	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY2.
1946	0	MAXCL3	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY3.

TABLE A-1 (CONTINUED)

ZEROS PLUS MISSING	# OBS. MISSING	VARIABLE	TYPE	LENGTH	DESCRIPTION
1842	0	MAXCL4	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY4.
1889	0	MAXCL5	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY5.
1912	0	MAXCL6	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY6.
1960	0	MAXCL7	NUM	3	The maximum number of students that can be enrolled each time a class is convened in FY7.
3262	0	MAXINP1	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY1.
2644	0	MAXINP2	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY2.
1995	0	MAXINP3	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY3.
1883	0	MAXINP4	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY4.
1937	0	MAXINP5	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY5.
1962	0	MAXINP6	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY6.
2013	0	MAXINP7	NUM	5	Maximum yearly input capacity (MAXCAP*MAXCL) in FY7.
3254	0	MOBLEN1	NUM	5	The length of the course (in calendar days) planned at mobilization in FY1.
2279	0	MOBLEN2	NUM	5	The length of the course (in calendar days) planned at mobilization in FY2.
1511	0	MOBLEN3	NUM	5	The length of the course (in calendar days) planned at mobilization in FY3.
1430	0	MOBLEN4	NUM	5	The length of the course (in calendar days) planned at mobilization in FY4.
1500	0	MOBLEN5	NUM	5	The length of the course (in calendar days) planned at mobilization in FY5.
1527	0	MOBLEN6	NUM	5	The length of the course (in calendar days) planned at mobilization in FY6.
1574	0	MOBLEN7	NUM	5	The length of the course (in calendar days) planned at mobilization in FY7.

TABLE A-1 (CONTINUED)

ZEROS PLUS MISSING	# OBS. MISSING	VARIABLE	TYPE	LENGTH	DESCRIPTION
2832	2213	NOCLASS1	NUM	3	The number of times the course is planned to convene during FY1.
2002	1423	NOCLASS2	NUM	3	The number of times the course is planned to convene during FY2.
1317	794	NOCLASS3	NUM	3	The number of times the course is planned to convene during FY3.
1295	791	NOCLASS4	NUM	3	The number of times the course is planned to convene during FY4.
1349	867	NOCLASS5	NUM	3	The number of times the course is planned to convene during FY5.
1375	889	NOCLASS6	NUM	3	The number of times the course is planned to convene during FY6.
1428	908	NOCLASS7	NUM	3	The number of times the course is planned to convene during FY7.
2153	0	NRSHIFT1	NUM	1	The number of planned shifts in FY1 (i.e. the number of classes for the course which convene and graduate on the same dates).
1423	0	NRSHIFT2	NUM	1	The number of planned shifts in FY2 (i.e. the number of classes for the course which convene and graduate on the same dates).
794	0	NRSHIFT3	NUM	1	The number of planned shifts in FY3 (i.e. the number of classes for the course which convene and graduate on the same dates).
791	0	NRSHIFT4	NUM	1	The number of planned shifts in FY4 (i.e. the number of classes for the course which convene and graduate on the same dates).
867	0	NRSHIFT5	NUM	1	The number of planned shifts in FY5 (i.e. the number of classes for the course which convene and graduate on the same dates).
889	0	NRSHIFT6	NUM	1	The number of planned shifts in FY6 (i.e. the number of classes for the course which convene and graduate on the same dates).
908	0	NRSHIFT7	NUM	1	The number of planned shifts in FY7 (i.e. the number of classes for the course which convene and graduate on the same dates).

NUMBER OF OBSERVATIONS: 7750

NUMBER OF VARIABLES: 46

NOTE: "NA" refers to not applicable.

TABLE A-2

TYPE COURSE VARIABLE CODES

Type course	Description
AA	Apprenticeship Training
AO	Officer Preparatory Schools not associated with professional development programs
AP	Enlisted Preparatory Schools
A1	Initial Skill Training - Enlisted
A2	Initial Skill Training - Officer
A3	Initial Skill Training - Enlisted Communications (Program 3)
A4	Initial Skill Training - Officer Communications (Program 3)
A5	Initial Skill Training - Enlisted Medical
A6	Initial Skill Training - Officer Medical
C1	Skill Progression Training - Enlisted
C2	Skill Progression Training - Officer
C3	Skill Progression Training - Enlisted Communications (Program 3)
C4	Skill Progression Training - Officer Communications (Program 3)
C5	Skill Progression Training - Enlisted Medical
C6	Skill Progression Training - Officer Medical
C7	Specialized Progression Training for Advanced Paygrades Enlisted Personnel normally at or above paygrade E5
CX	Skill Progression Training - Officer Medical
E1	Professional Development Education - Senior Service College
E2	Professional Development Education - Intermediate Service School
E3	Graduate Education for Sub-specialty, full time, funded - Degree Progam
E4	Undergraduate Education - Degree Program
E5	Postgraduate Education (not fully funded) - Degree Program
E6	Non-degree Educational Programs
E7	Health Education Programs
E8	Other Education Programs
F1	Functional Training - Enlisted
F2	Functional Training - Officer
F3	Functional Training - Enlisted Communications (Program 3)

TABLE A-2 (Continued)

Type course	Description
F4	Functional Training - Enlisted Communications (Program 3)
PA	NESEP
PB	Health Profession Acquisition Military Programs
PC	Other Programs
PD	Preparatory School
P1	Officer Acquisition Training (Academy)
P2	NROTC
P3	JNROTC
P4	AVROC II
P5	ROC
P6	OCS
P7	AOC (Pre-commissioning)
P8	NFOL (Pre-commissioning)
P9	NUPOC-S
R1	Recruit Training
R2	OSVET Training (Other Service Veteran)
R3	NAVET Training
R4	ARTS
V1	Undergraduate NASC/PRIM Flight Training
V2	Undergraduate Flight Taining - PROP
V3	Undergraduate Flight Training - JET
V4	Undergraduate Flight Training - HELO
V5	Undergraduate NFO Training

TABLE A-3

SPECIALIZED TRAINING DEFINITION AND
TYPE COURSE CLASSIFICATION

A-school (Initial Skill Training):

- Provide the basic technical knowledge and skills required to prepare for job entry-level performance and further specialized training. Includes apprenticeship training. An NEC, NOBC, or MOS may be awarded to identify the skill achieved. Also includes some officer courses such as communication officer, ASW officer, etc.

Enlisted AP, A1, A3, A5
Officer A2, A4, A6.

C-school (Advanced Skill Training):

- Provide the advanced knowledge, skills, and techniques to perform a particular job in a billet and/or any course that awards or is a prerequisite to a skill awarding course; i.e., NEC, NOBC, or MOS, or is 13 calendar days or longer and does not conform to the definition of a Class "A" course.

Enlisted C1, C3, C5, C7
Officer C2, C4, C6, CX

F-school (Functional Training):

- Provide team training to fleet personnel, officers, and enlisted who normally are, or are enroute to duty as, members of ships' companies, or individual training such as refresher, operator, maintenance, and technical training of less than 13 calendar days established to meet the needs of the fleet or type commanders. An NEC, NOBC, or MOS will not be awarded.

Enlisted F1, F3
Officer F2, F4

TABLE A-3 (Continued)

Recruit Training:

- Training upon initial enlistment or induction that provides the general indoctrination and prepares the recruit for early adjustment to military life by providing skill and knowledge in basic military subjects. Note: Does not include Apprenticeship Training.

Enlisted R1
Other R2, R3, R4

Professional Skills Training (E-schools):

- Programs designed to provide formal professional educational instruction in a general or particular field of study that may lead to an academic degree.

Officer Aquisition (P-schools):

- Officer acquisition programs designed to provide undergraduate education and/or indoctrination and basic training in fundamentals, preliminaries, or principles to midshipmen, officer candidates, and other newly commissioned officers (except those acquired through Class "V" programs).

Flight Training (V-schools):

- Provide the skills that lead to the designation of Naval Aviator or Naval Flight Officer.

Undergraduate Pilot Training: V2, V3, V4
Undergraduate Navigation Training and Naval Flight Officer Training: V1, V5.

Apprenticeship Training:

- Provided to recruits who do not enter A-school upon completion of Recruit Training.

All - AA Initial Skill Training

Source: MIISA Document No. 23UM8401 (Dec. 1984) and FY 1987 MMTR Data Submission Requirements

TABLE A-4

CURRICULUM CONTROL AUTHORITY DESCRIPTIONS

CIN prefix	Course Curriculum Control Authority (CCA)
A	Chief of Naval Technical Training - CNTT
B	Commander, Naval Medical Command - MEDCOM
C	Chief of Naval Technical Training (Aviation Skill Courses) - CNTT/Aviation
D	Commander, Naval Air Force, U.S. Atlantic Fleet - AIRLANT
E	Commander, Naval Air Force, U.S. Pacific Fleet - AIRPAC
F	Commander, Submarine Force, U.S. Atlantic Fleet - SUBLANT
G	Commander, Naval Surface Force, U.S. Atlantic Fleet - SURFLANT
H	Commander, Naval Surface Force, U.S. Pacific Fleet - SURFPAC
J	Commander, Training Command, U.S. Atlantic Fleet - TRALANT
K	Commander, Training Command, U.S. Pacific Fleet - TRAPAC
M	Marines
L	Commander, Submarine Force, U.S. Pacific Fleet - SUBPAC
N	Commanding Officer, Naval Aviation Logistics Center - NALC
P	Chief of Naval Education and Training - CNET
Q	Chief of Naval Air Training - CNATRA
R	Chief of Naval Reserve - RESFOR
S	Other commands not assigned above.
X	Recruit training and other (formal or informal) CNET training not included in CANTRAC. Including the following - Activity Student Indoctrination - Student Transients - Sea Cadet Training - Basic Recruit Training - Airman Apprenticeship - Seaman Apprenticeship - Fireman Apprenticeship - Constructionman Apprenticeship - Specialized Brief/Training - Naval Reserve Training/Drills
Y	Other CNET Courses - Other CNET
Z	CNET Naval Reserve Training - CNET/RESERVE

Source: MCRF MIISA Document No. 23UM8401 Dec. 1984.

APPENDIX B

COBOL FORMAT OF MCRF

APPENDIX B

COBOL FORMAT OF MCRF

This appendix contains a listing of the COBOL format of the MCRF data file.

```
FD      TRAIN-MCRF
        RECORD CONTAINS 850 CHARACTERS
        BLOCK CONTAINS 10 RECORDS
        DATA RECORD IS INREC.
01      INREC.
        03  CDP       PIC X(4).
        03  STURPT    PIC X.
        03  STATCODE  PIC X.
        03  STATDATE  PIC X(5).
        03  PRECIN    PIC X(8).
        03  ATTRLIM   PIC 9(8).
        03  SETBLIM   PIC 9(8).
        03  ATRMOVAV  PIC 9(8).
        03  CDEVICE   PIC X(5).
        03  PDEVICE   PIC X(5).
        03  CIN       PIC X(8).
        03  CCA       PIC X.
        03  RMS       PIC X(4).
        03  TYPECRSE  PIC X(2).
        03  SVCSPT    PIC X.
        03  STATUSCD  PIC X.
*.....................................................70 CHARACTERS
        03  ECM       PIC X(5).
        03  ACO       PIC X(5).
        03  TPC       PIC X(5).
        03  STPC      PIC X(5).
        03  UIC       PIC X(5).
        03  SFUIC     PIC X(5).
        03  REQSPO    PIC X(5).
        03  QUOTACTL  PIC X(16).
        03  SCI       PIC X.
        03  ZBD       PIC 9(8).
        03  TYSCHL    PIC X(2).
        03  TITLE     PIC X(16).
        03  NEC       PIC X(4).
        03  METHINST  PIC X.
        03  THEPDS    PIC 9(8).
        03  LABPDS    PIC 9(8).
*.....................................................169 CHARACTERS
        03  CON-VARS OCCURS 7 TIMES.
            05  CONRAT  PIC 9(8).
            05  CONPD   PIC 9(8).
        03  PIPELINE PIC X.
        03  REC201   PIC 9(8).
*.....................................................290 CHARACTERS
        03  OTHER-COURSE-INFO OCCURS 7 TIMES.
            05  FY       PIC 9(8).
            05  FYSUFF   PIC 9(8).
            05  LENGTH   PIC 9(8).
            05  INSTDAY  PIC 9(8).
            05  NRSHIFT  PIC 9(8).
            05  NOCLASS  PIC 9(8).
            05  MAXCAP   PIC 9(8).
            05  MAXINP   PIC 9(8).
            05  MAXCL    PIC 9(8).
            05  MOBLEN   PIC 9(8).
*.....................................................850 CHARACTERS
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END

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DTIC